# WiDS : JARVIS
# Assignment - 1

Mentors: Stavan Mehta, Foram Trivedi, and Saniya Khinvasara

Hello, we hope you had a good time watching the videos and learned a lot from them. Let us try the following questions!

## Problem 1

Create and print a 2-dimensional NumPy array of shape $(5, 5)$ filled with random* integers between 1 and 100. Perform the following tasks:

- Extract and print the middle element of the array using NumPy indexing.
- Calculate and print the mean of each row of the array.
- Create a new array that contains only the elements from the original array that are greater than the overall mean of the array.
- Write a Python function `numpy_spiral_order(matrix)` that takes a NumPy matrix and returns a list containing the elements visited in a spiral order.

**Hints:**

- Use `np.random.randint()` to create the initial array.
- Use NumPy functions like `np.mean()` and boolean indexing to perform calculations and extract elements.

## Problem 2

**Objective:** Build a program that allows users to log, categorize, and analyze their personal expenses. This tracker will help users manage their finances by providing summaries, monthly reports, and visualizations.

**How to proceed?**

1. **Setup the Expense Logging System**:

- Define categories for expenses, such as *Food*, *Transportation*, *Entertainment*, etc.
- Create functions to add, edit, or delete expense entries. Each entry should include:
  - Date

- Category
- Amount
- Description (optional)

2. **Store Data**:

- Use a file (CSV or JSON format) to store expense data locally.
- Optionally, use an SQLite database for a more robust, database-driven approach.

3. **Build Summary and Report Functions**:

- Calculate total spending over specific periods (weekly, monthly).
- Break down spending by category to help users understand where their money goes.
- Provide insights like highest spending categories or recurring expenses.

4. **Visualize Spending**:

- Use libraries like Matplotlib or Seaborn to create simple charts, such as pie charts for spending by category or line graphs for monthly spending trends.